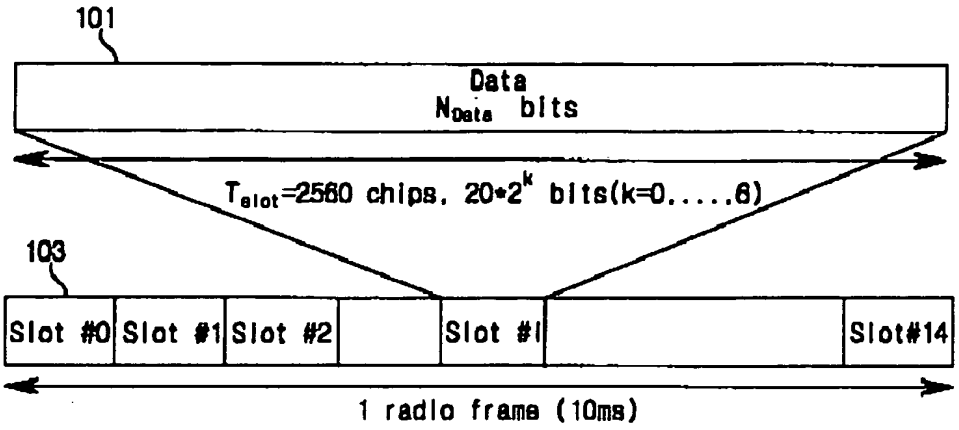

FIG. 1A
(PRIOR ART)

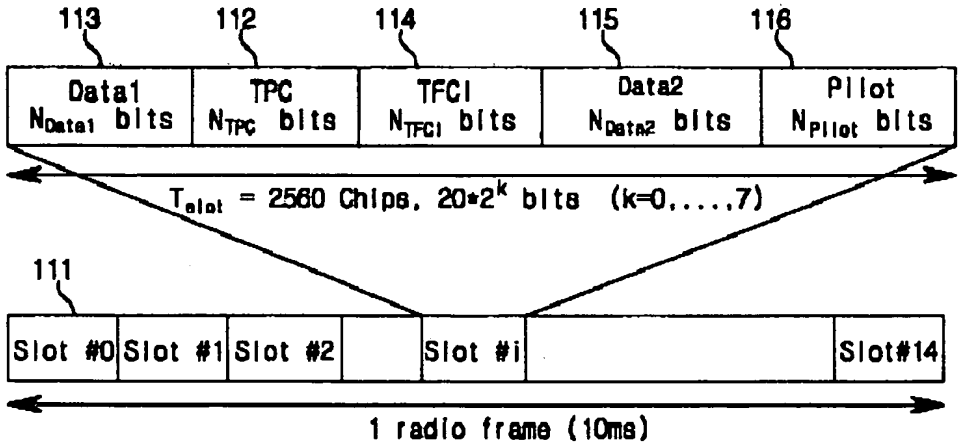

FIG. 1B
(PRIOR ART)

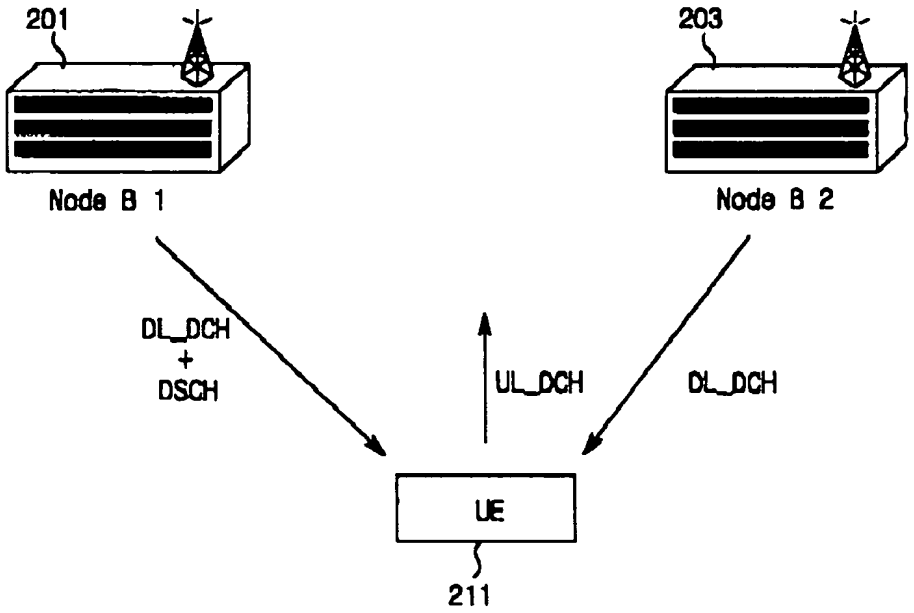

FIG. 2
(PRIOR ART)

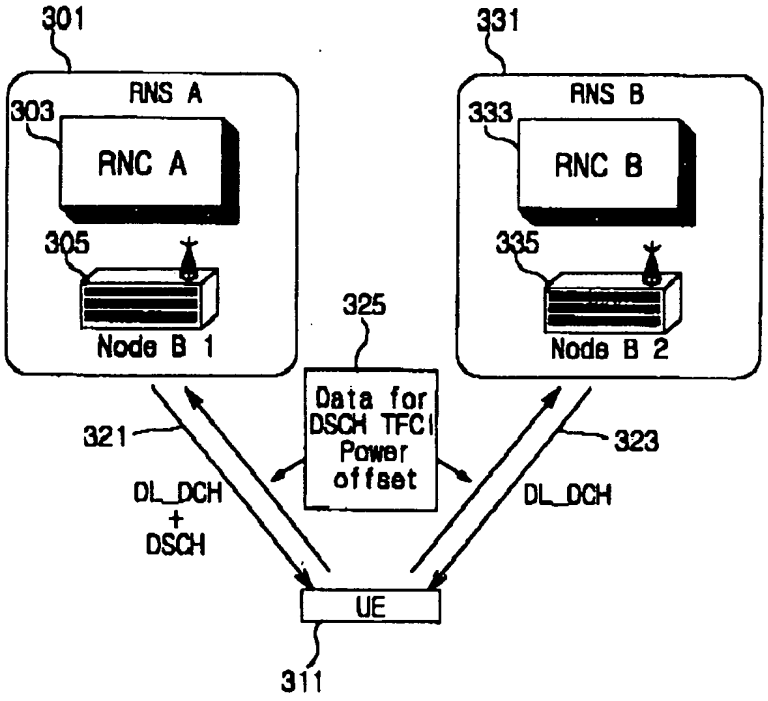

FIG. 3
(PRIOR ART)

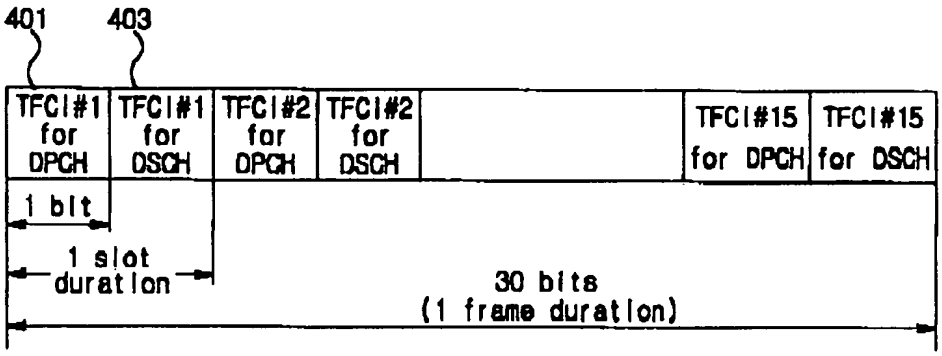
401
403
TFCI#1 for DPCH
TFCI#1 for DSCH
TFCI#2 for DPCH
TFCI#2 for DSCH
TFCI#15 for DPCH
TFCI#15 for DSCH
1 bit
1 slot duration
30 bits
(1 frame duration)

FIG. 4

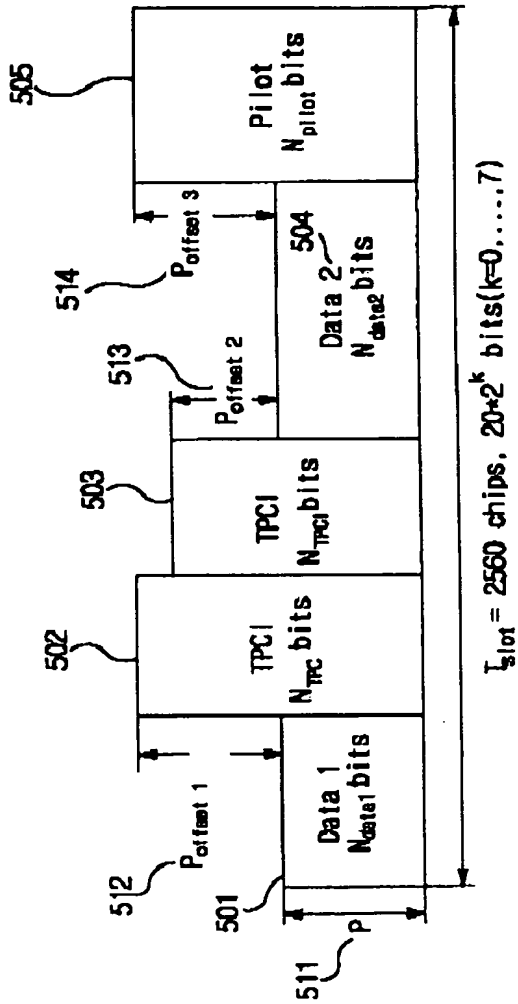
505
Pilot
N_{pilot} bits
514
$P_{offset\ 3}$
504
Data 2
N_{data2} bits
513
$P_{offset\ 2}$
503
TPC
N_{TPC} bits
502
TFCI
N_{TFCI} bits
512
$P_{offset\ 1}$
501
Data 1
N_{data1} bits
511
P
T_{slot} = 2560 chips, $20*2^k$ bits(k=0,....7)

FIG. 5

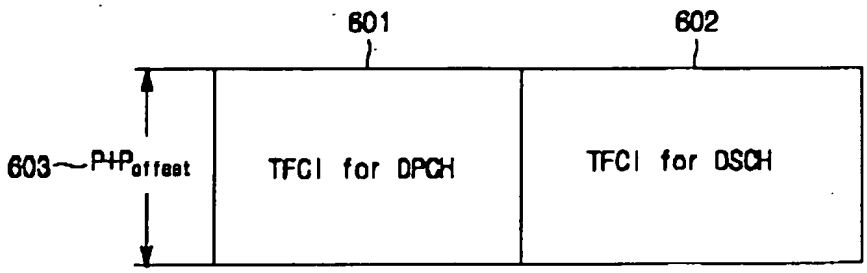

FIG. 6A

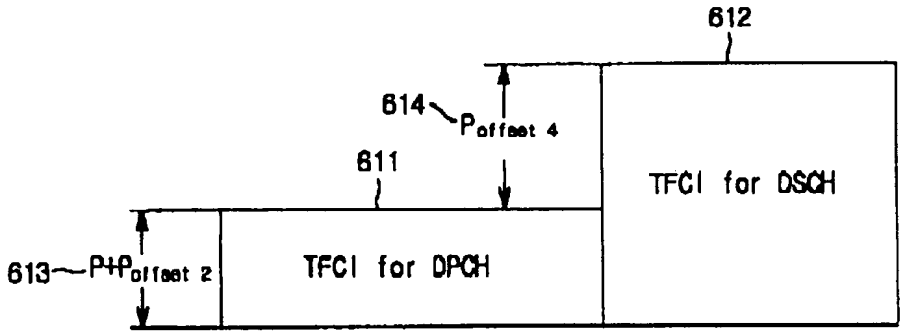

FIG. 6B

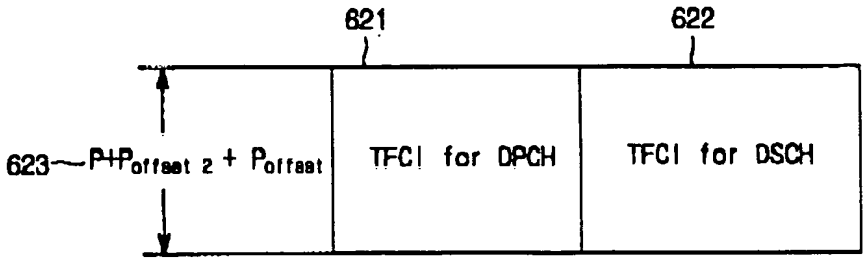

FIG. 6C

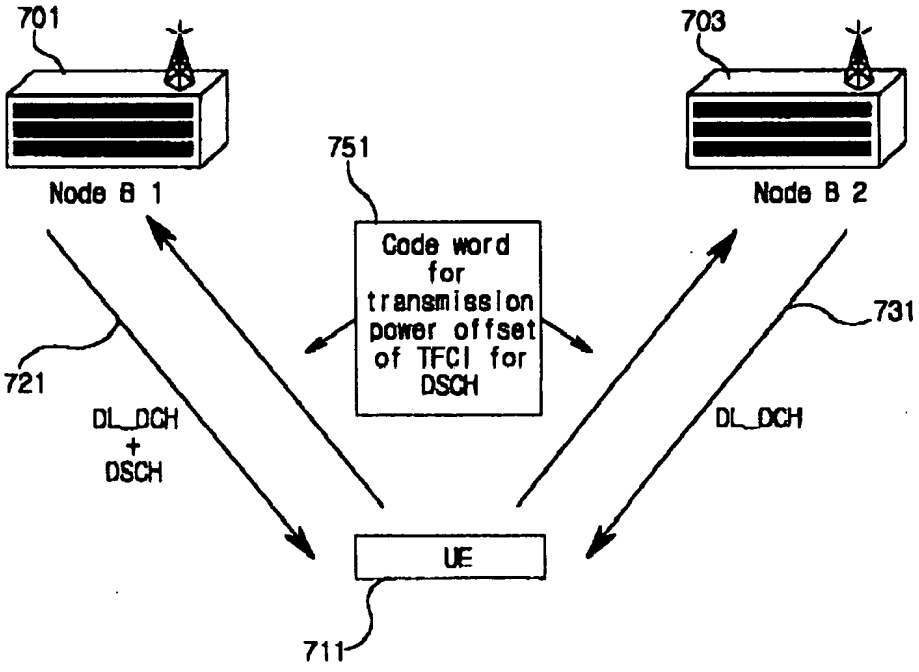
701
703
751
Node B 1
Node B 2
Code word for transmission power offset of TFCI for DSCH
721
731
DL_DCH + DSCH
DL_DCH
UE
711

FIG. 7

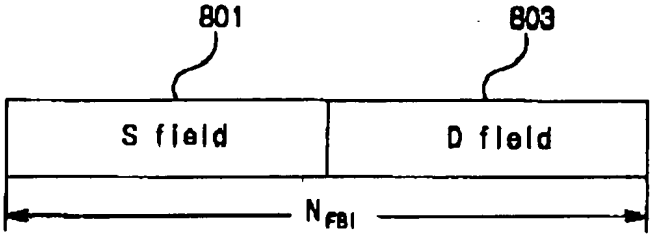
801
803
S field
D field
N_{FBI}

FIG. 8A

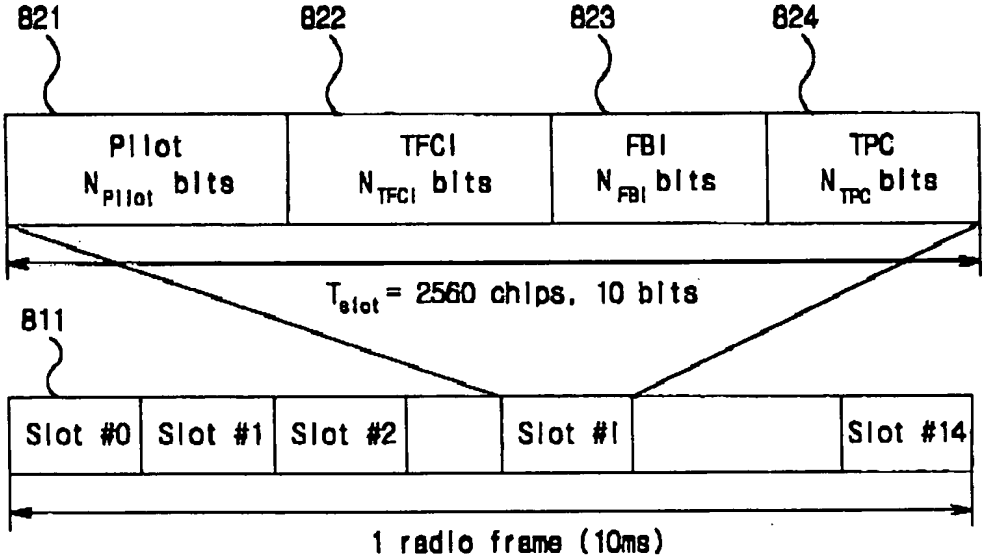
821
822
823
824
Pilot
N_{Pilot} bits
TFCI
N_{TFCI} bits
FBI
N_{FBI} bits
TPC
N_{TPC} bits
T_{slot} = 2560 chips, 10 bits
811
Slot #0
Slot #1
Slot #2
Slot #I
Slot #14
1 radio frame (10ms)

FIG. 8B

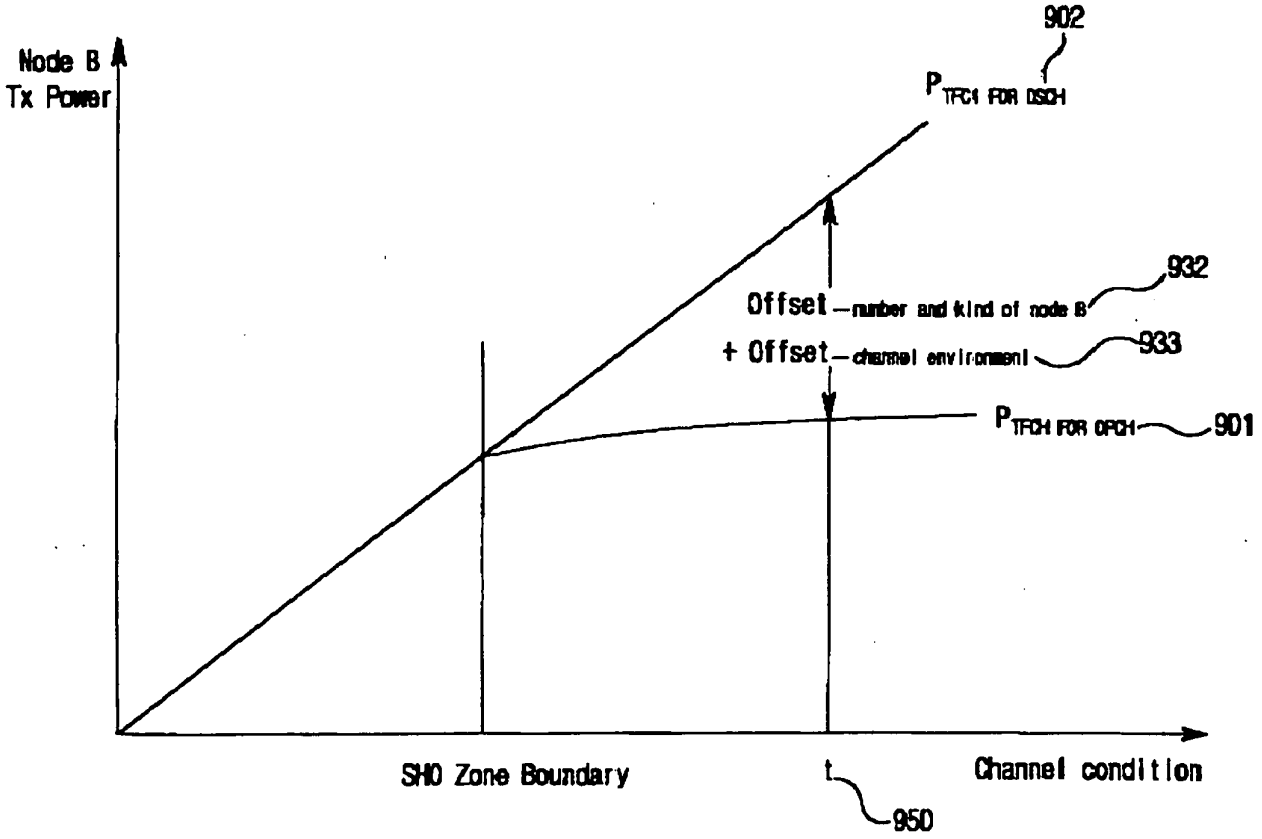
Node B
Tx Power
902
$P_{TFCI\ FOR\ DSCH}$
Offset – number and kind of node B
932
+ Offset – channel environment
933
$P_{TFCI\ FOR\ DPCH}$
901
SHO Zone Boundary
t
950
Channel condition

FIG. 9

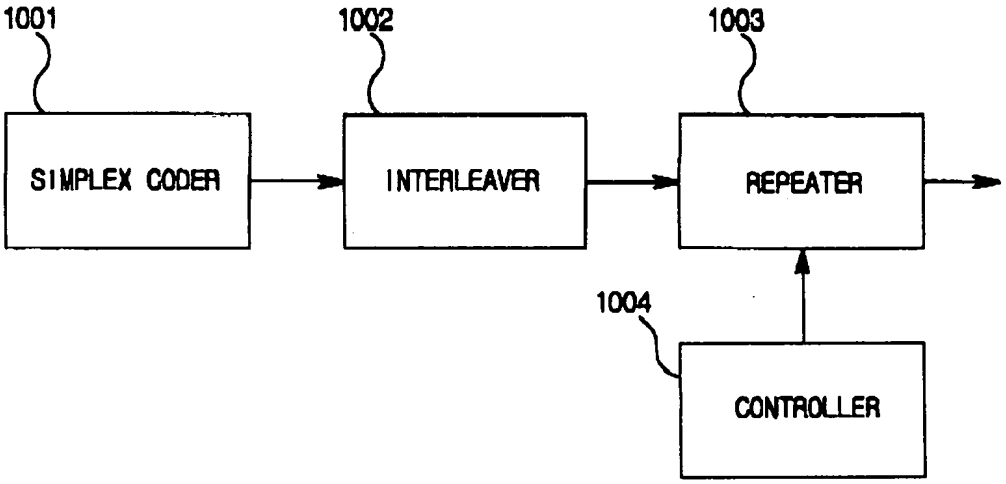
1001
1002
1003
SIMPLEX CODER
INTERLEAVER
REPEATER
1004
CONTROLLER

FIG. 10

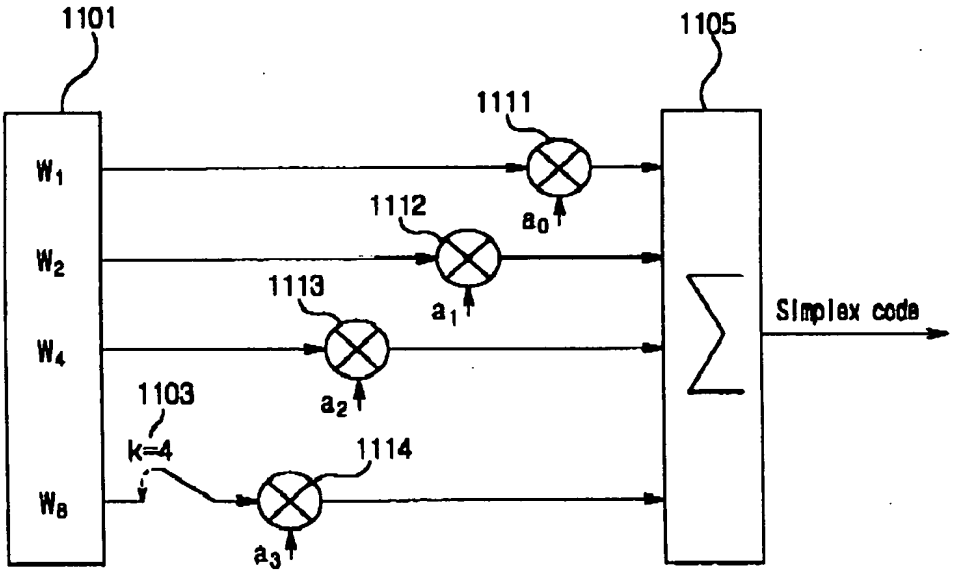
1101
1105
1111
1112
1113
1114
1103
k=4
W1
W2
W4
W8
a0
a1
a2
a3
Simplex code

FIG. 11

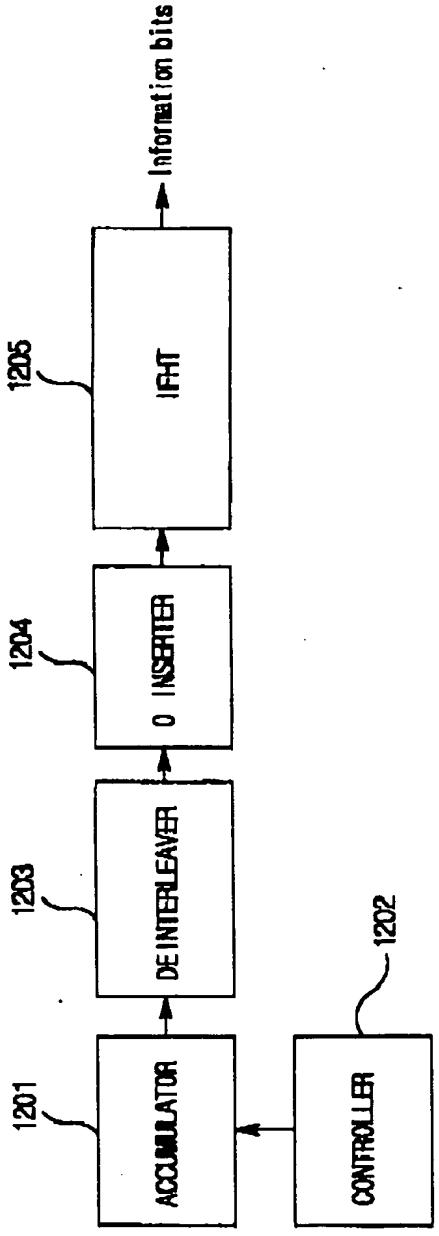
Information bits
1205
IFHT
1204
0 INSERTER
1203
DE INTERLEAVER
1202
1201
ACCUMULATOR
CONTROLLER

FIG. 12

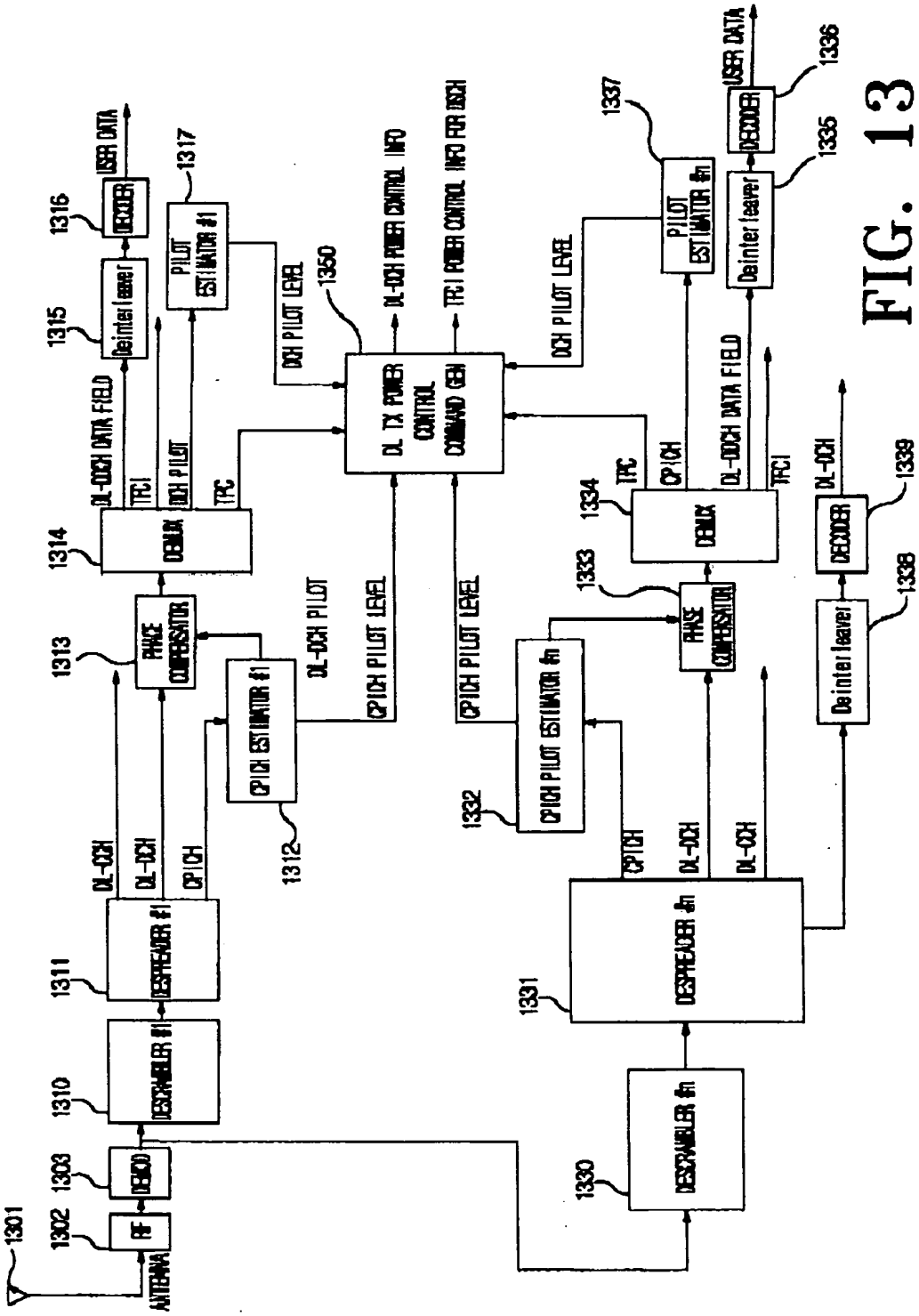
1301
ANTENNA
1302
RF
1303
DEMOD
1310
DESCRAMBLER #1
1311
DESPREADER #1
DL-DCH
DL-DCH
CPICH
1312
CPICH EST MANITOR #1
1313
PHASE COMPENSATOR
1314
DEMUX
DL-DCH DATA FIELD
TFCI
DCH PILOT
TPC
1315
Deinterleaver
1316
DECODER
USER DATA
1317
PILOT EST MANITOR #1
DCH PILOT LEVEL
1350
DL TX POWER CONTROL COMMAND GEN
DL-DCH POWER CONTROL INFO
TFCI POWER CONTROL INFO FOR DSCH
CPICH PILOT LEVEL
DL-DCH PILOT
CPICH PILOT LEVEL
1330
DESCRAMBLER #n
1331
DESPREADER #n
1332
CPICH PILOT EST MANITOR #n
1333
PHASE COMPENSATOR
1334
DEMUX
TPC
CPICH
DL-DCH DATA FIELD
TFCI
1335
Deinterleaver
1336
DECODER
USER DATA
1337
PILOT EST MANITOR #n
DCH PILOT LEVEL
1338
Deinterleaver
1339
DECODER
DL-DCH
CPICH
DL-DCH
DL-DCH

FIG. 13

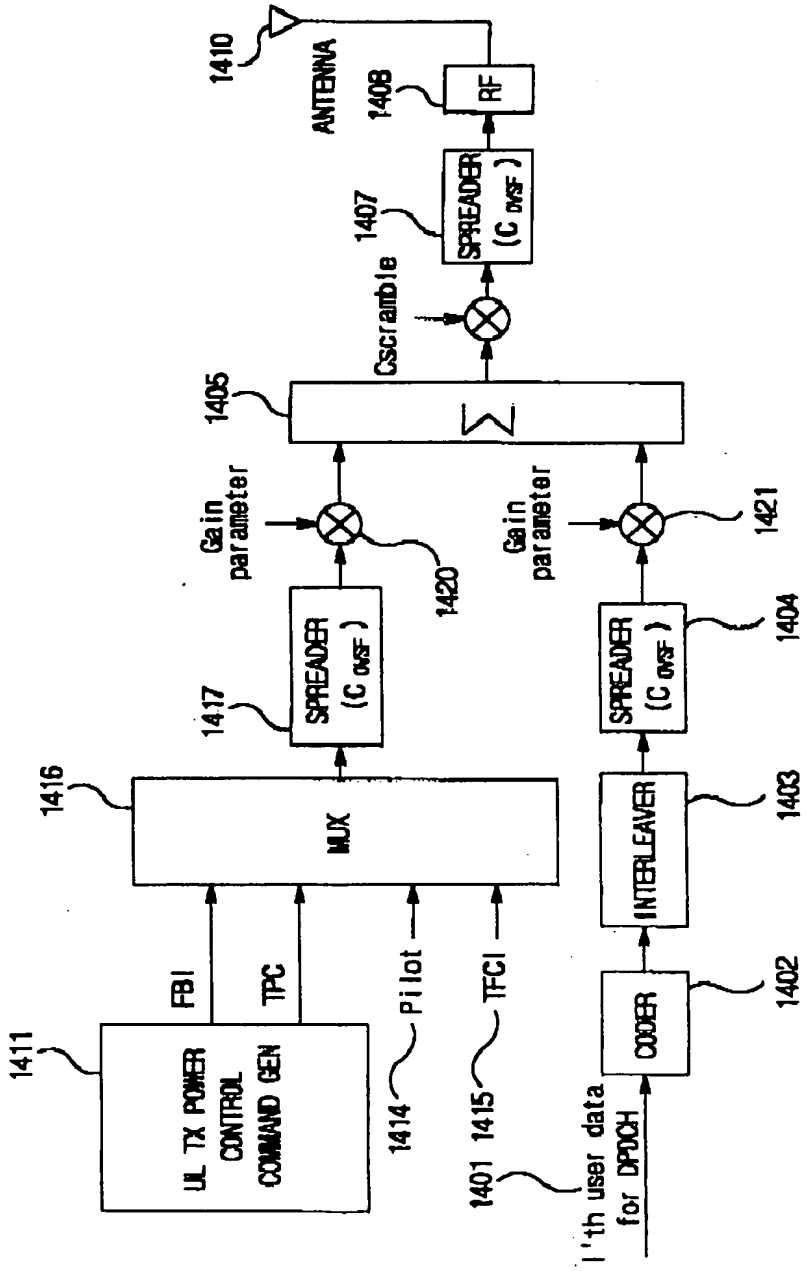
1410
ANTENNA
1408
RF
1407
SPREADER
(C OVSF)
Cscramble
1405
Gain parameter
1420
Gain parameter
1421
1417
SPREADER
(C OVSF)
1404
SPREADER
(C OVSF)
1416
MUX
1403
INTERLEAVER
1411
UL TX POWER CONTROL COMMAND GEN
FBI
TPC
Pilot
TFCI
1414
1415
1402
CODER
1401
I'th user data for DPDCH

FIG. 14

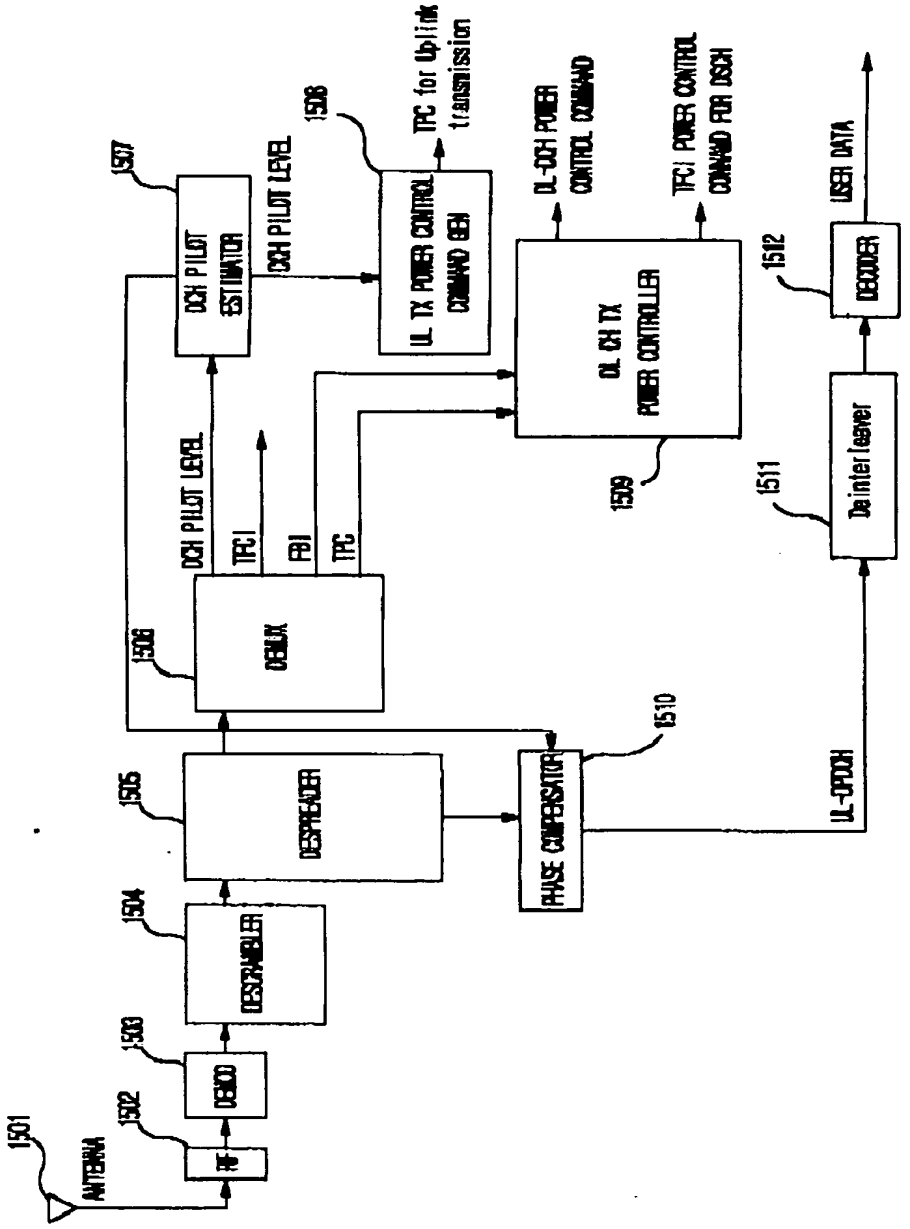
1501
ANTENNA
1502
RF
1503
DEMOD
1504
DESCRAMBLER
1505
DESPREADER
1506
DEMUX
1507
DCH PILOT ESTIMATOR
1508
UL TX POWER CONTROL COMMAND GEN
1509
DL CH TX POWER CONTROLLER
1510
PHASE COMPENSATOR
1511
Deinterleaver
1512
DECODER
DCH PILOT LEVEL
TFCI
FBI
TPC
TPC for Uplink transmission
DL-DCH POWER CONTROL COMMAND
TFCI POWER CONTROL COMMAND FOR DSCH
USER DATA
UL-DPDCH

FIG. 15

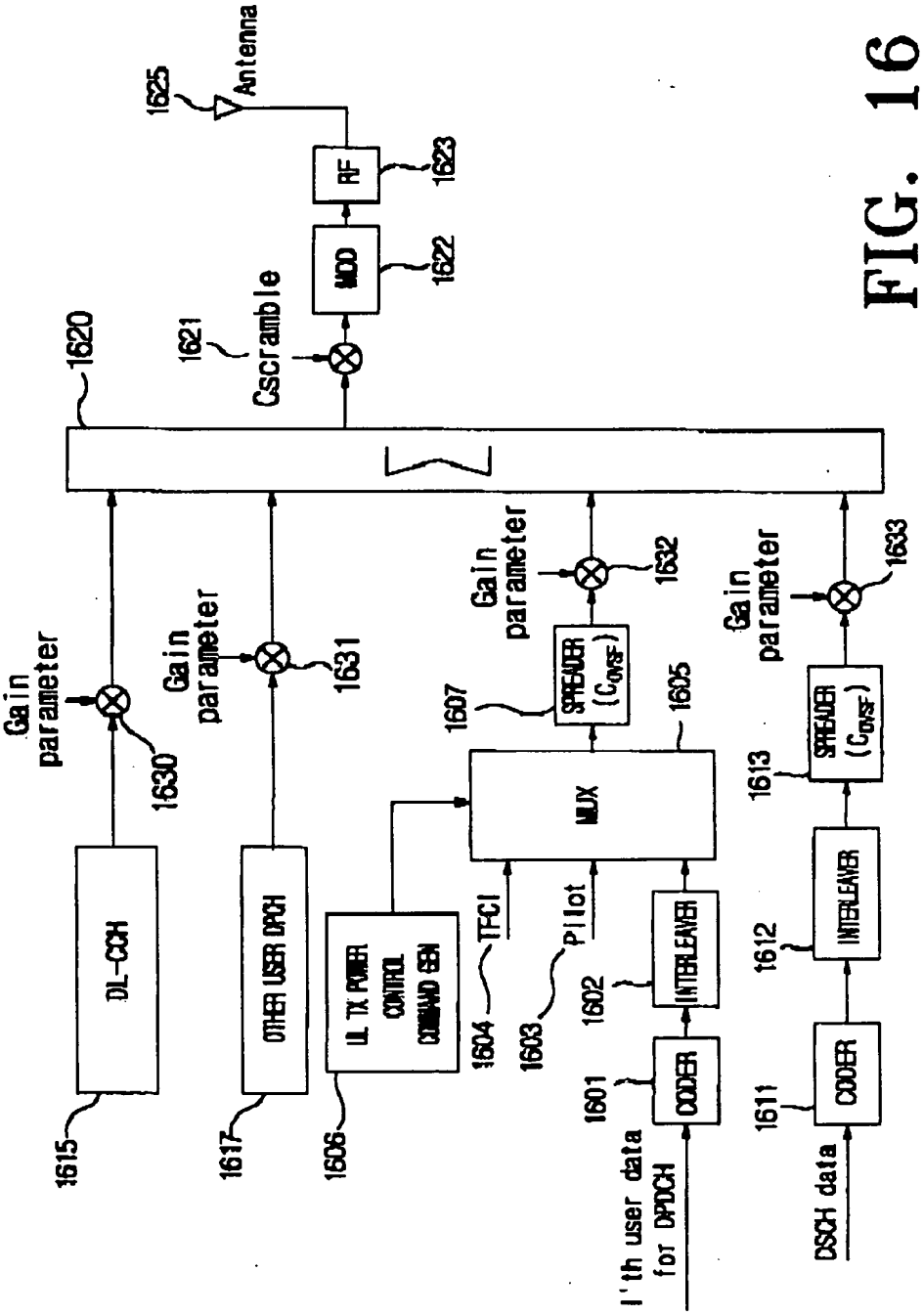
1625
Antenna
RF
1623
MOD
1622
1621
Cscramble
1620
Gain parameter
1630
Gain parameter
1631
Gain parameter
1632
Gain parameter
1633
DL-CCH
OTHER USER DPCH
UL TX POWER CONTROL COMMAND GEN
MUX
SPREADER (C_{ONSF})
SPREADER (C_{ONSF})
INTERLEAVER
INTERLEAVER
CODER
CODER
1615
1617
1606
1604
TFCI
1603
Pilot
1602
1601
1607
1605
1613
1612
1611
I'th user data for DPDCH
DSCH data

FIG. 16

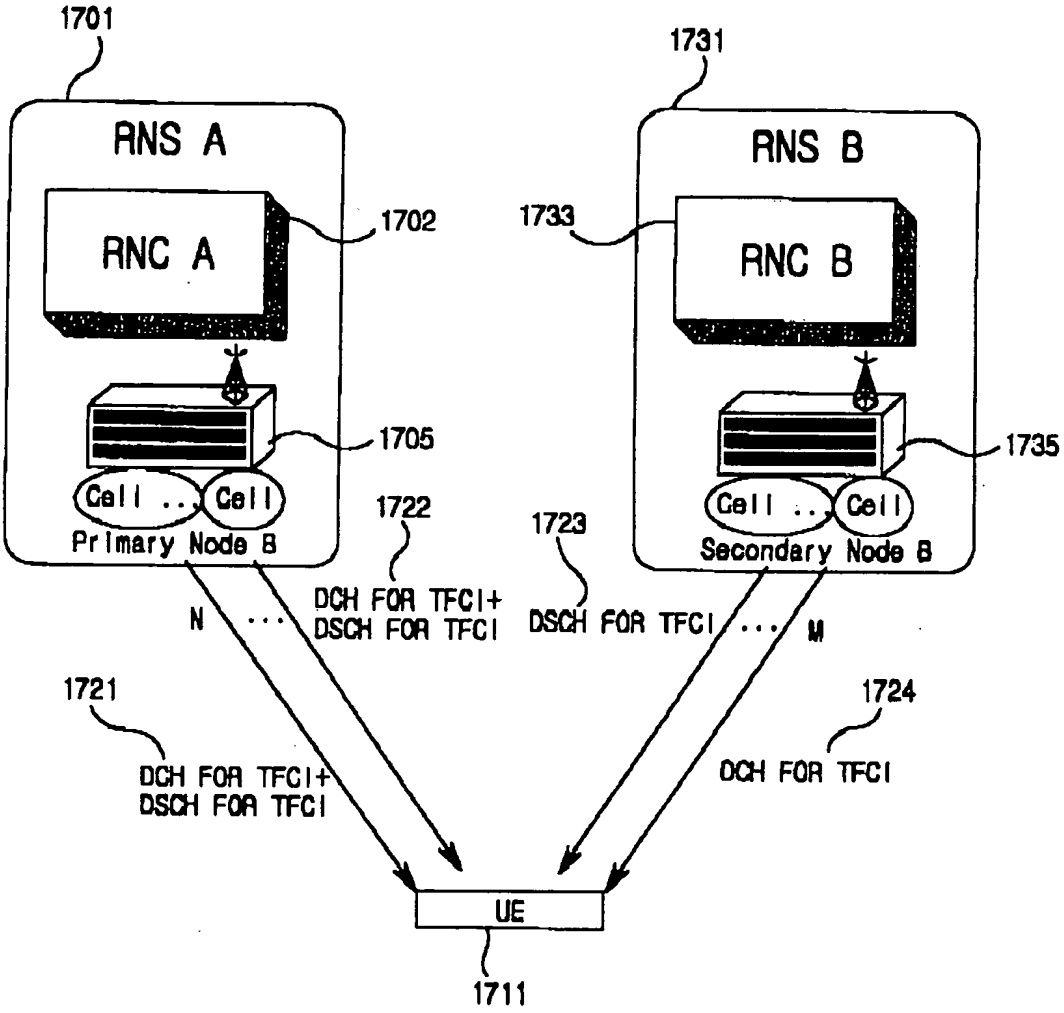
1701
RNS A
RNC A
1702
1705
Cell .. Cell
Primary Node B
1731
RNS B
1733
RNC B
1735
Cell .. Cell
Secondary Node B
1722
DCH FOR TFCI+
DSCH FOR TFCI
N ... 1
1723
DSCH FOR TFCI ... M
1721
DCH FOR TFCI+
DSCH FOR TFCI
1724
DCH FOR TFCI
UE
1711

FIG. 17

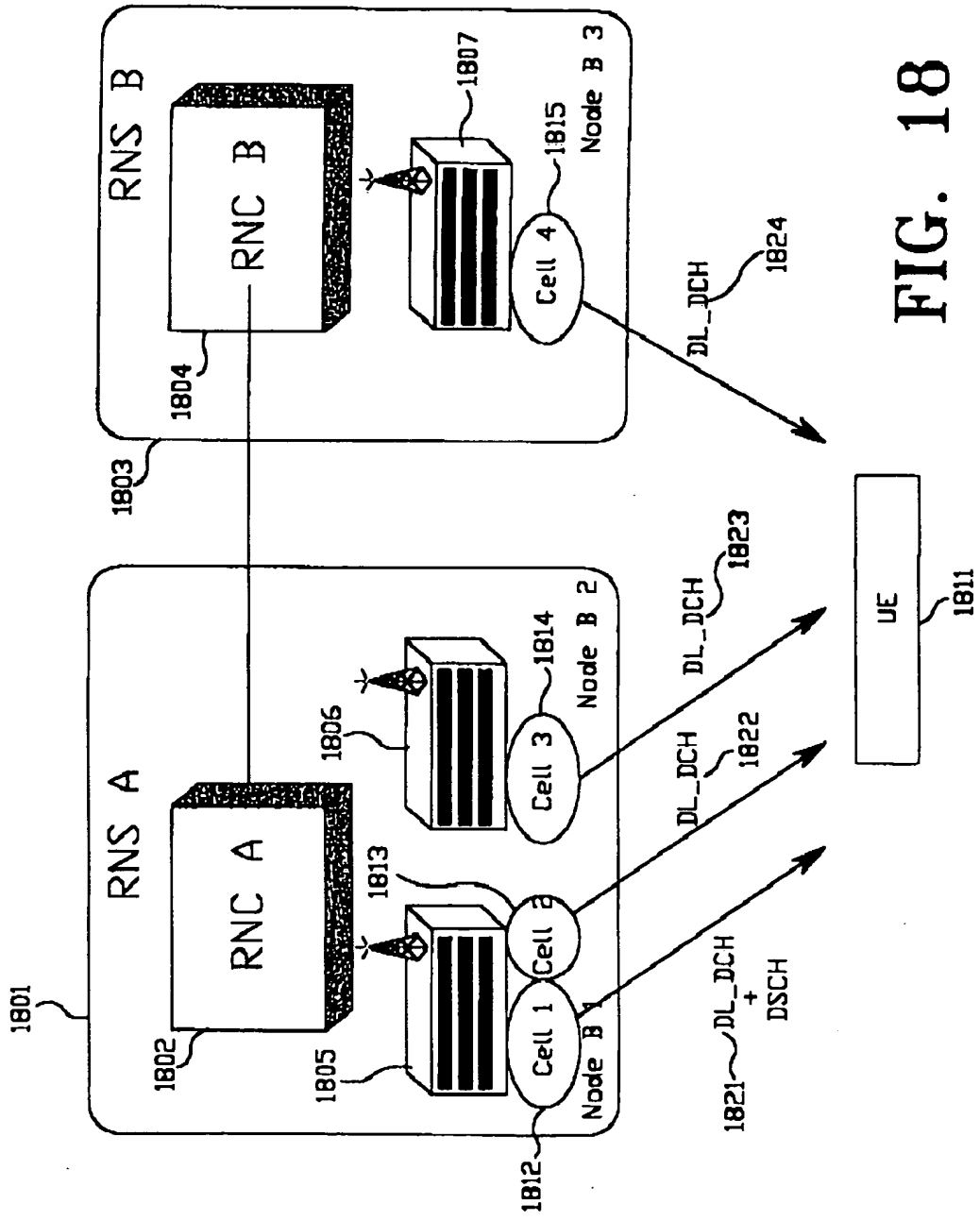
RNS B
RNC B
1807
1815
Node B 3
Cell 4
1804
1803
DL_DCH
1824
RNS A
RNC A
1806
1814
Node B 2
Cell 3
1813
Cell 2
1805
Cell 1
Node B 1
1802
1801
1812
DL_DCH
1823
DL_DCH
1822
DL_DCH
+
DSCH
1821
UE
1811

FIG. 18

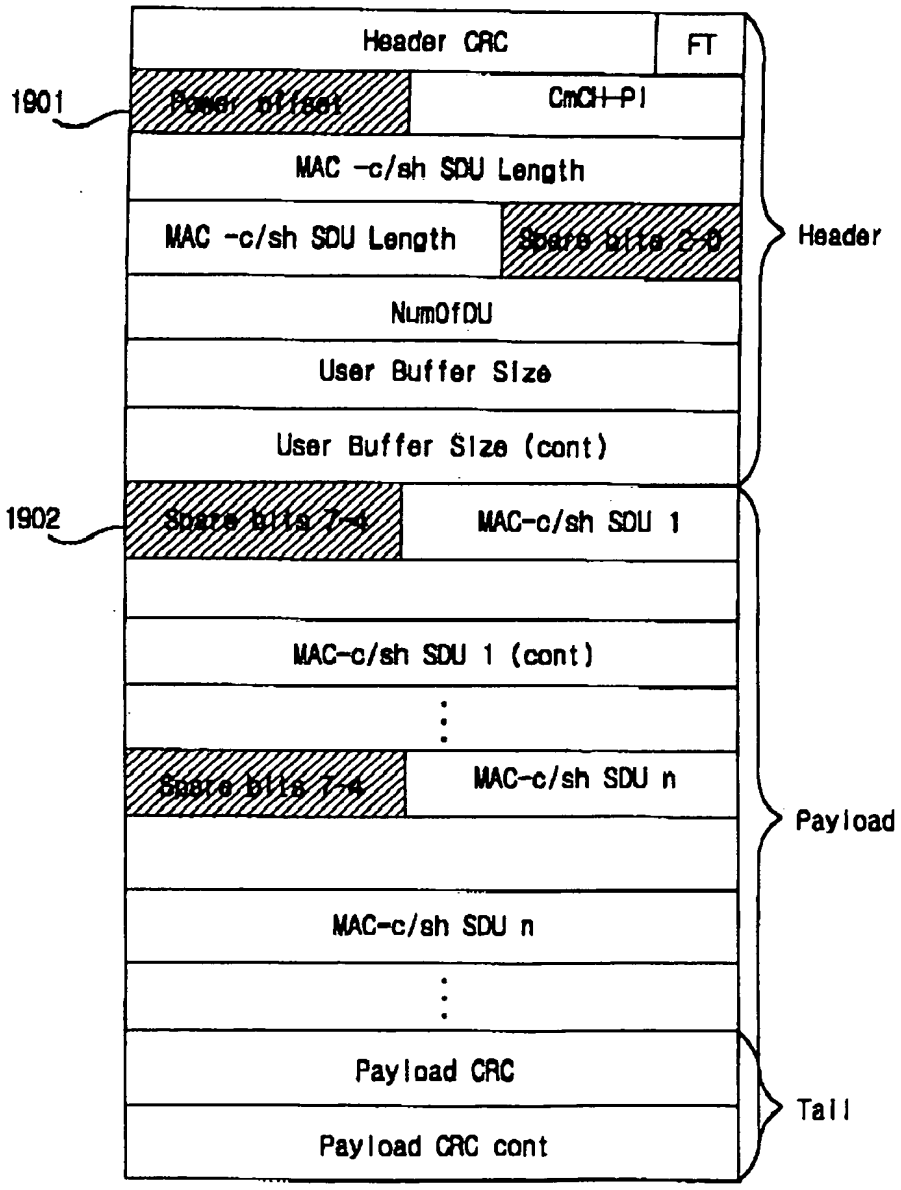
Header CRC
FT
1901
Power offset
CmCH-PI
MAC -c/sh SDU Length
MAC -c/sh SDU Length
Spare bits 3-0
Header
NumOfDU
User Buffer Size
User Buffer Size (cont)
1902
Spare bits 7-4
MAC-c/sh SDU 1
MAC-c/sh SDU 1 (cont)
Spare bits 7-4
MAC-c/sh SDU n
Payload
MAC-c/sh SDU n
Payload CRC
Payload CRC cont
Tail

FIG. 19

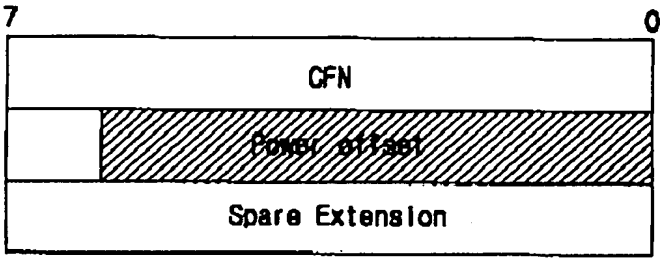

FIG. 20

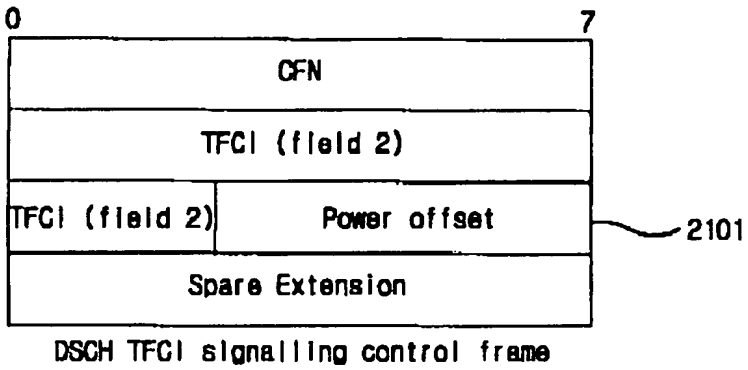
0
7
CFN
TFCI (field 2)
TFCI (field 2)
Power offset
2101
Spare Extension
DSCH TFCI signalling control frame

FIG. 21

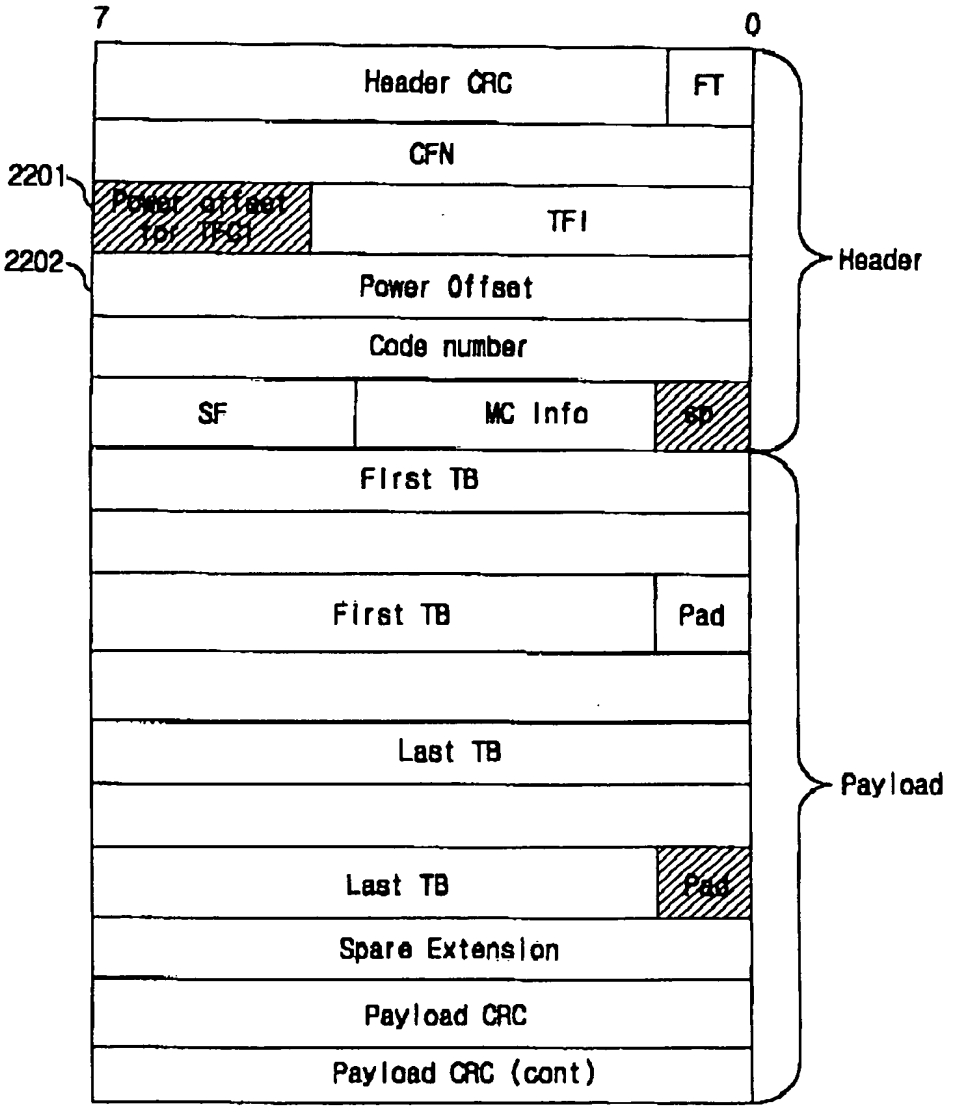
7
0
Header CRC
FT
CFN
2201
Power offset for TFCI
TFI
2202
Power Offset
Code number
SF
MC Info
SD
Header
First TB
First TB
Pad
Last TB
Last TB
Pad
Payload
Spare Extension
Payload CRC
Payload CRC (cont)

FIG. 22

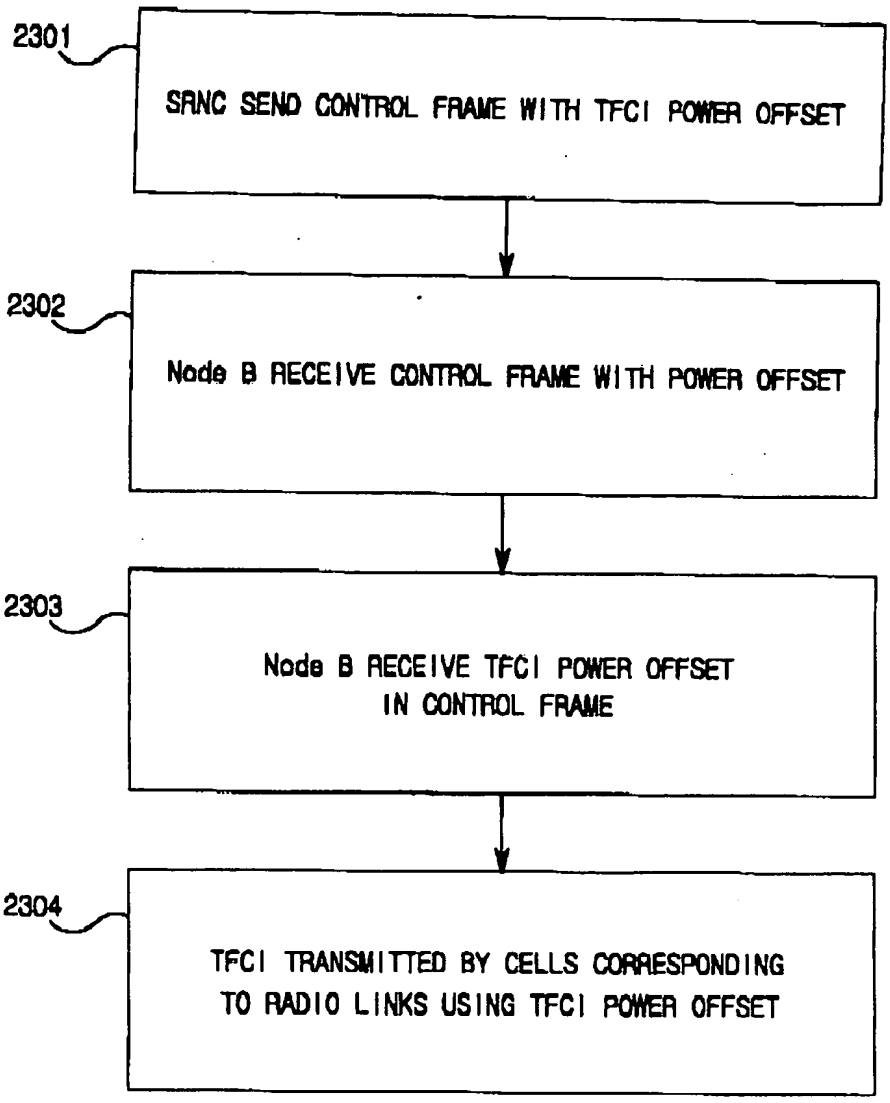
2301
SRNC SEND CONTROL FRAME WITH TFCI POWER OFFSET
2302
Node B RECEIVE CONTROL FRAME WITH POWER OFFSET
2303
Node B RECEIVE TFCI POWER OFFSET IN CONTROL FRAME
2304
TFCI TRANSMITTED BY CELLS CORRESPONDING TO RADIO LINKS USING TFCI POWER OFFSET

FIG. 23

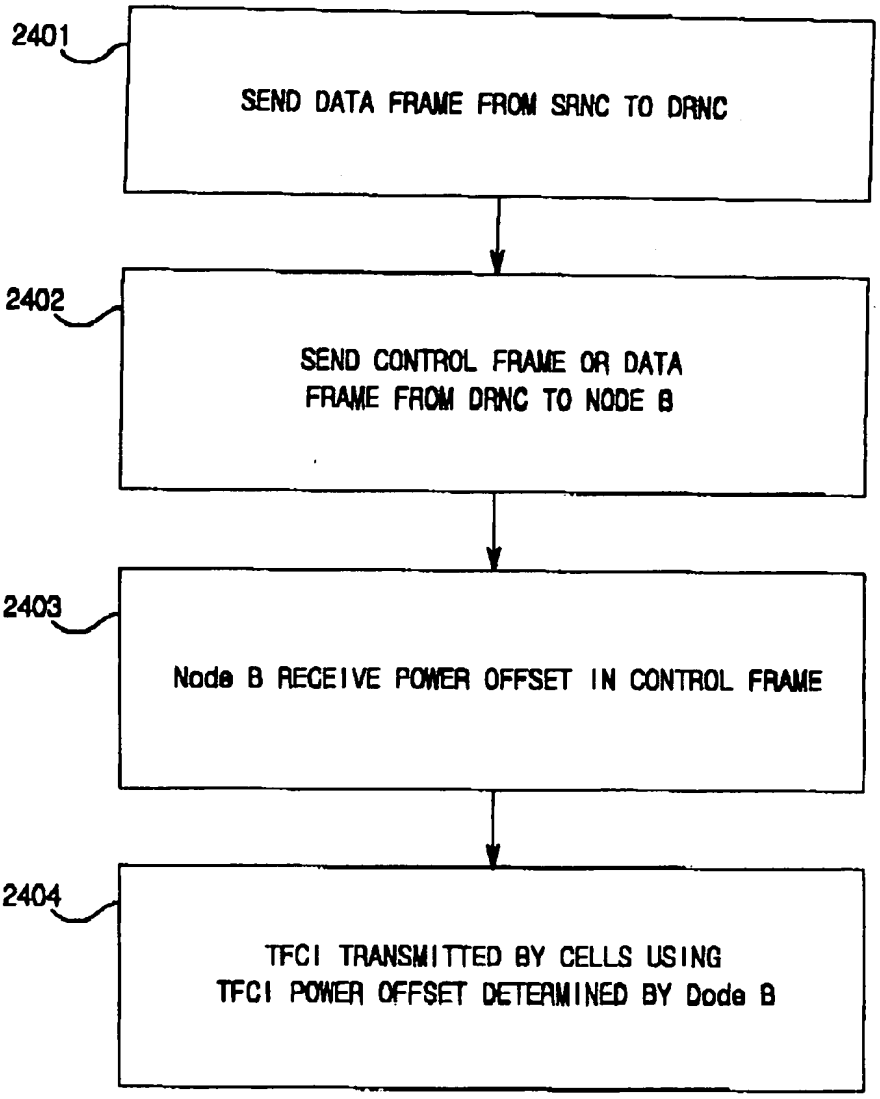
2401
SEND DATA FRAME FROM SRNC TO DRNC
2402
SEND CONTROL FRAME OR DATA FRAME FROM DRNC TO NODE B
2403
Node B RECEIVE POWER OFFSET IN CONTROL FRAME
2404
TFCI TRANSMITTED BY CELLS USING TFCI POWER OFFSET DETERMINED BY Dode B

FIG. 24

9. 1.36 RADIO LINK SETUP REQUEST

9. 1.36. 1 FDD message

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned criticality
Message Discriminator	M		9.2.1.45		—	
Message Type	M		9.2.1.46		YES	reject
CRNC Communication context ID	M		9.2.1.18		YES	reject
Transaction ID	M		9.2.1.62		—	
UL DPCH Information		1			YES	reject
>UL Scrambling code	M		9.2.2.59		—	
>Min UL Channelisation Code Length	M		9.2.2.22		—	
>Max Number of UL DPDCHs	C - CodeLen		9.2.2.21		—	
>puncture limit	M		9.2.1.50	For UL	—	
>TFCS	M		9.2.1.58	For UL	—	
>UL DPCCH Slot Format	M		9.2.2.57		—	
>UL SIR Target	M		UL SIR 9.2.2.58		—	
>Diverslity mode	M		9.2.2.9		—	
>SSDT cell ID Length	O		9.2.2.45		—	
>S Field Length	C-FBI		9.2.2.40		—	
DL DPCH Information					YES	reject
>TFCS	M		9.2.1.58	For DL	—	
>DL DPCH Slot Format	M		9.2.2.10		—	
>TFCI signalling mode	M		9.2.2.50		—	
>TFCI presence	C - SlotFormat		9.2.1.57		—	
>Multiplexing Position	M		9.2.2.29		—	
>PDSCH RLID	C-DSCH		RLID 9.2.1.53		—	
>PDSCH code mapping	C-DSCH		9.2.2.25		—	
>Power Offset Information		1			—	
>>PO1	M		Power Offset 9.2.2.29	Power offset for the TFCI bits	—	
>>PO2	M		Power Offset 9.2.2.29	Power offset for the TPC bits	—	
>>PO3	M		Power Offset 9.2.2.29	Power offset for the pilot bits	—	
>FDD TPC DL Step Size	M		9.2.2.16		—	
The Rest Omitted						

FIG. 25

9. 1.36 RADIO LINK SETUP REQUEST

9. 1.36. 1 FDD message

IE/Group Name	Presence	Range	IE type and reference	Semantics description	Criticality	Assigned Criticality
Message Discriminator	M		9.2.1.45		—	
Message Type	M		9.2.1.46		YES	reject
CRNC Communication context ID	M		9.2.1.18		YES	reject
Transaction ID	M		9.2.1.62		—	
UL DPCH Information		1			YES	reject
>UL Scrambling code	M		9.2.2.59		—	
>Min UL Channelisation Code Length	M		9.2.2.22		—	
>Max Number of UL DPDCHs	C - CodeLen		9.2.2.21		—	
>puncture Limit	M		9.2.1.50	For UL	—	
>TFCS	M		9.2.1.58	For UL	—	
>UL DPCCH Slot Format	M		9.2.2.57		—	
>UL SIR Target	M		UL SIR 9.2.2.58		—	
>Diversity mode	M		9.2.2.9		—	
>SSDT cell ID Length	O		9.2.2.45		—	
>S Field Length	C-FBI		9.2.2.40		—	
DL DPCH Information					YES	reject
>TFCS	M		9.2.1.58	For DL	—	
>DL DPCH Slot Format	M		9.2.2.10		—	
>TFCI signalling mode	M		9.2.2.50		—	
>TFCI presence	C - SlotFormat		9.2.1.57		—	
>Multiplexing Position	M		9.2.2.29		—	
>PDSCH RLID	C-DSCH		RL ID 9.2.1.53		—	
>PDSCH code mapping	C-DSCH		9.2.2.25		—	
>Power Offset Information		1			—	
>>P01	M		Power Offset 9.2.2.29	Power offset for the TFCI bits	—	
>>P02	M		Power Offset 9.2.2.29	Power offset for the TPC bits	—	
>>P03	M		Power Offset 9.2.2.29	Power offset for the pilot bits	—	
>>P04	M		9.2.2.29	Power offset for the TFCI bits for DSCH	—	

The Rest Omitted

FIG. 26

9. 1.47 RADIO LINK RECONFIGURATION FRQUEST

9. 1.47. 1 FDD message

IE/Group Name	Presence	Range	IE type and Reference	Semantics Description	Criticality	Assigned Criticality
Message Discriminator	M		9.2.1.45		—	
Message Type	M		9.2.1.46		YES	reject
Node B Communication Context ID	M		9.2.1.48	The reserved value "ALL NBCC" shall not be used.	YES	reject
Transaction ID	M		9.2.1.62		—	
UL DPCH Information		0..1			YES	reject
>TFCS	O		9.2.1.58	For the UL.	—	
DL DPCH Information		0..1			YES	reject
>TFCS	O		9.2.1.58	For the UL.		
>TFCI Signalling Mode	O		9.2.2.50		—	
>Limited Power Increase	O					
>Power Offset Information		1			— —	
>>PO1	M		Power Offset 9.2.2.29	Power offset for the TFCI bits	—	
>>PO4	M		Power Offset 9.2.2.29	Power offset for the TFCI bits for DSCH	—	

The Rest Omitted

FIG. 27